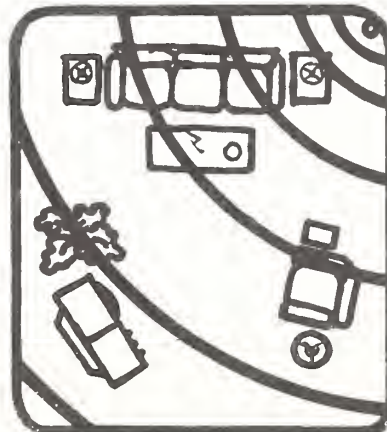
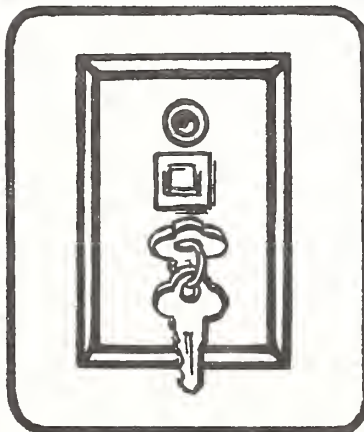
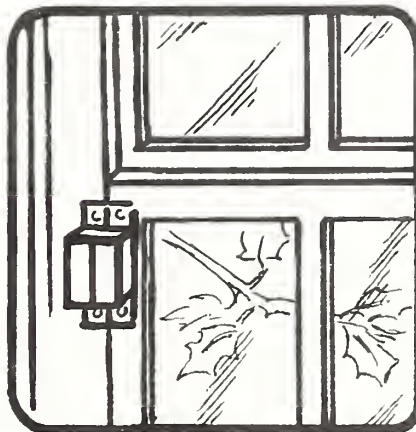
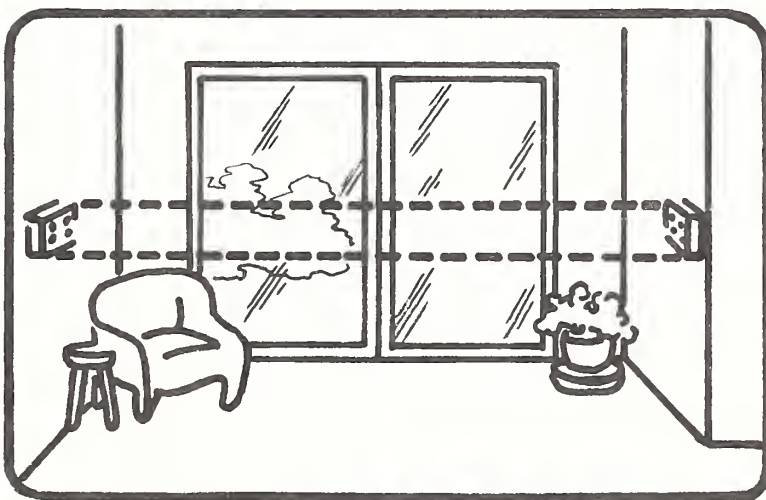


HOME SECURITY ALARMS

what they are and
how they work



With the increasing rate of residential burglary, homeowners are becoming more and more concerned for the security of their homes and personal belongings. A solidly constructed door, hung on a well-fitted frame and secured with a good deadbolt lock, along with windows that will resist forced entry, should offer adequate protection for your home. However, for additional protection, many homeowners are considering the installation of home security alarm systems.

How do alarm systems work?

All security alarms are made up of three basic parts: the detectors or sensors, the control unit, and the actual alarm. The detectors or sensors are electronic or electromagnetic devices that act as observers by detecting the presence or action of an intruder.

The control unit is the heart of the system, to which all sensors are connected. The unit receives the information that a sensor has been disturbed and transmits a signal that triggers the alarm. Devices called "panic buttons" can also be connected to the control unit. These devices allow you to activate the alarm manually and are usually placed at the front door or in the bedroom.

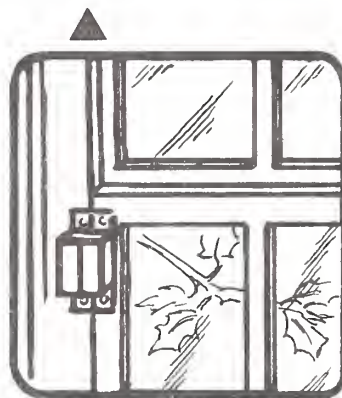
The alarm reports that a sensor has been disturbed. It can sound at your home, or the signal can be transmitted to a remote location.



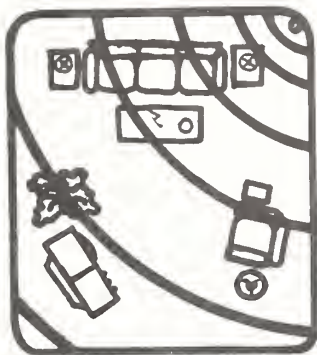
How do the detectors or sensors work?

The following are some of the more commonly available sensors or detectors:

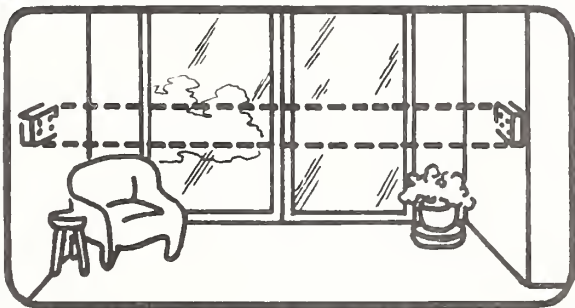
Switch sensors are electromagnetic devices that are installed at all entry points considered to be accessible from the ground. When a door or window is opened the alarm is triggered. It is advisable to install sensors on windows or balcony doors adjacent to trees. Switch sensors are the most frequently used alarm sensors in residences.



Pressure mats are used to protect specific areas of the home. The mats can be hidden under a carpet or rug in a frequently traveled corridor or can be used near items of value such as your TV set or stereo system. When pressure is exerted on the mat, the alarm is triggered.



Ultrasonic motion detectors fill the room with sound waves too high for most humans to hear. Any movement in the room disturbs the wave pattern and triggers the alarm. As some people and most animals are bothered by the high-pitched sounds, an in-home demonstration before purchasing is advisable.



Infrared photoelectric sensors project an infrared light beam between two points. Anything interrupting the beam will trigger an alarm. They are effective when installed at entry points as well as specific areas inside your home.

How are the sensors and “panic buttons” connected to the control unit?

The sensors and panic buttons can be connected to the control unit either by direct wiring or by a wireless system.

The wireless system operates on batteries that must be changed periodically. Transmitters are installed at each sensor or panic button and a receiver is installed in the control unit. The wireless panic button can be carried from room to room. Wired and wireless systems are equally effective.

How does the alarm report an intrusion?

There are two types of reporting alarms available - local and remote.

The **local** alarm is the simplest to install and the least expensive. When the system detects an intruder the alarm signal is heard at or near your home. Its effectiveness depends on the intruder being frightened away, or neighbors calling the police. The alarm device is generally located in the attic or under the eaves of the roof.

The **remote** alarm transmits the alarm signal to a location away from your home, but can be combined with a local alarm. Several types of remote alarms are available:

- The automatic dialer sends a prerecorded message or signal over telephone lines to a person you choose: an answering service, a neighbor, or a relative. The effectiveness of this system depends on someone being present to answer the telephone and call the police. The telephone company requires that the installation of a dialer system meet its specifications.

Do not direct your alarm to the local police department without its prior approval. Several of the first dialer alarms were so unreliable that many jurisdictions continue to prohibit directing an alarm from a dialer to a police department.

- The direct-connect system transmits the alarm signal to the police department. This type of service provides very good protection, but often is not available to the private home owner. Most jurisdictions limit the direct-connect service to financial institutions and commercial establishments. The signals are transmitted over leased lines and there is a monthly charge to the subscriber.
- The central station system is a commercial service. The alarm signal is transmitted to a private security company that monitors the system. In addition to notifying the police that your system has sent an alarm, the central station will dispatch guards to your home. Central stations will normally include the maintenance and repair of your alarm system as a part of your contract and will charge a monthly service fee.

What is the cost of an alarm system?

The cost of purchasing and installing a system can range from several hundred dollars to more than a thousand dollars. In addition, a monthly service fee of from ten to more than fifty dollars may be charged for some remote alarm systems.

How can I be sure my system is a quality product?

Your security alarm should be approved by a major testing laboratory, such as Underwriters Laboratories, Inc. (UL).

How can I get the best service from my alarm system?

To get the best service from your alarm system, establish and follow a routine. When activating the system, make sure that doors and windows are closed and that pets are removed from protected areas. Nine out of ten alarms transmitted are false, half of which are caused by improper operation.

Do not treat the system like a new toy or demonstrate it to your friends. If your system sends alarms unnecessarily, it will lose credibility.

Improperly selected or installed sensors can also cause false alarms. For example, some sensors may react to changes in temperature or humidity, or to a draft from heating and air-conditioning vents. Similarly, the motion of a billowing curtain or a ringing telephone bell may cause an ultrasonic motion detector to signal an alarm. In addition, your system should not be operated on the same electrical circuit as kitchen appliances or your heating and cooling system. The cyclic operation of these appliances may trigger an alarm. Your installer can advise you on the selection and placement of sensors that will best suit your needs.

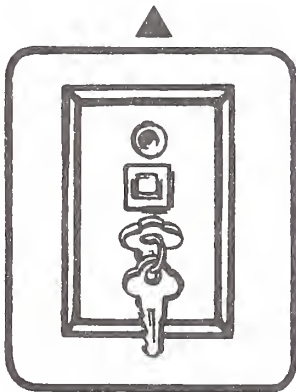
Some detectors have sensitivity adjustments. Do not set them too high; they could become an almost constant source of false alarms. Also, do not try to increase the area of protection of a detector by increasing its sensitivity. Either use two detectors, or buy one that will meet your needs.

What else should I know about purchasing an alarm system?

Local laws. The system you purchase should conform to local ordinances. Make sure to check the local laws regarding noise (some jurisdictions limit the time that an alarm can sound) and licensing of installers. Get price quotations from several companies before you install your system; costs for equipment and installation will vary.

Installation. Discuss installation and maintenance with the installer before you sign a contract. Know how the system will be installed. Will the wiring be concealed or exposed? Will touchup painting be needed when the installation is complete? Ask to see how the sensors will look--you may find their appearance unacceptable. The more you know before you sign a contract, the better.

Optional features. There are a few optional features that you may want to consider adding to your system: **1.** a key-activated switch that allows you to turn the system on and off from the outside; **2.** a test switch that allows you to check all sensors without sending an alarm; and **3.** battery-powered back-up that allows the system to continue to operate during a power failure.



Maintenance. Once the system is installed, follow the manufacturer's instructions carefully, and be sure that all the members of your family know how to operate the system.

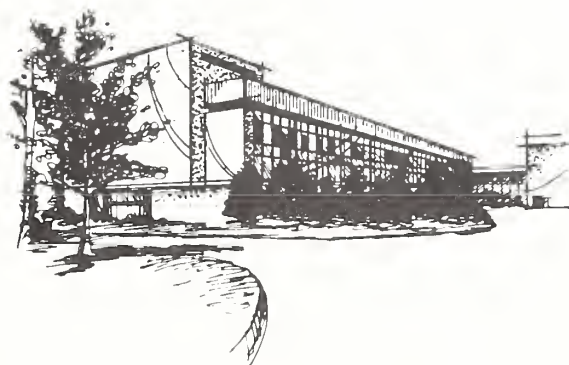
What should I do if the alarm goes off?

When an intruder hears the alarm, his primary interest is getting out of the house as quickly as possible. If you are in the house, **stay out of the way.** If you can, lock yourself in your bedroom. The intruder is more likely to hurt you if confronted. Telephone the police as soon as possible. ■

For more information on home security write: Home Security Starts At Your Door, Consumer Information Center, Pueblo, Colorado 81009.

The information in this pamphlet is based on research performed by the Law Enforcement Standards Laboratory, Institute for Applied Technology, National Bureau of Standards, under the sponsorship of the National Institute for Law Enforcement and Criminal Justice, U.S. Department of Justice.

Center for Consumer Product Technology
Institute for Applied Technology



LC 1079
March 1977

